

NESTING HABITS OF THE WOODPECKERS AND
THE VULTURES IN MISSISSIPPI.

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OBSERVATIONS on the nesting and laying of the Woodpeckers (Picidæ) and the Vultures (Cathartidæ) have shown several very interesting phenomena. The following will be an effort to bring out the rather peculiar and often unexpected actions on the part of these birds without any attempt to go into detail or record the many familiar nesting habits that are well known to all ornithologists. The notes are taken entirely from my data that were made while collecting and observing in the field in the east central and southwest portions of Mississippi.

Ceophlœus pileatus. PILEATED WOODPECKER.—This bird has become rare in many parts of Mississippi but is still rather common in certain portions. During three seasons seventeen nests were watched in Adams County. In the vicinity where observations were made every small woods had its pair of these large woodpeckers. The individuals of this species seemed to occupy very small feeding areas. Of the seven nests that were found in 1902 five pairs of the birds were located in their respective woods during the previous December and January. Whenever a pair was once seen feeding in a wood during the winter the same pair could always be found very close to that place. At the beginning of the nesting season they would invariably make their burrow in some dead but sound tree near the edge of the brake. From continued observation it appeared certain that whenever a pair were found in a small wood during the winter they were sure to nest there the following spring.

The burrow is very large and requires in most cases about one month for construction, being commenced in this locality about the latter part of February. But it was found very difficult to note the exact length of time consumed in burrowing, as the birds try so many parts of the same tree before striking one to suit their taste. The nest tree and other dead trees close at hand were often scarred from top to bottom. In two cases they began a nest, then seemed to start one in another place, and then returned

to the former and completed it. Of course it may be that the first attempt was a definite site and they only tapped about in other places to feed. But it is very certain that they did no work on the nest hole for a space of several days after it had been worked for two or three days continuously. It was a rather difficult matter also to decide when the burrow was complete. In some cases this seemed to be when laying began. Again nests were found complete, and one could be certain that it was not worked further, though laying did not begin for an entire week.

The birds were very shy and would usually leave the nest the moment the tree was rapped with the hand or a stick. The birds flew completely out of sight into the woods not to appear again until the intruder was well away from the nest tree. Only one pair was observed that had their nest in a dead tree which stood in an open field at least sixty or seventy yards from the wood. The female in this case flew about the nest tree and lit once on the upper part and again just over the nest hole while a person was in the act of climbing the tree. This was by far the most daring bird seen and, as mentioned above, because of the isolation of the tree, her burrow was unusually exposed for this species.

In the spring of 1901 my first observations were made in Adams County. Four pairs were located in February just as they were selecting nesting sites. It was then expected that they would continue laying after the first set was removed, as most other members of the family will do. It was also thought that some sets would contain five or six eggs, as many writers claim for this bird. The first nest, a burrow twenty-five feet from the ground in an old sycamore stump, contained one egg on March 22; March 26 it contained three, and on April 1, when the set was removed, it consisted of four slightly incubated eggs. The burrow was left undisturbed until May 14, when it was also taken by being sawed off from above and below the cavity. The bird had undoubtedly deserted it as soon as she found her eggs gone. The pair staid in this wood for the remainder of the season but did not attempt to construct a second burrow.

The next set was taken April 7 and contained only three eggs that had been incubated about one week. This nest, being rather

difficult to reach, had not been disturbed previous to this occasion. Again the burrow was deserted, no second one was constructed, and the birds remained for the rest of the season in this same wood where every suitable tree could be watched. Another set of four eggs was taken on April 8, and the conduct of the birds was much the same. The fourth, a set of four eggs, was allowed to hatch, and the parents were as shy after the nest contained young as they had been before. They would disappear whenever the nest was visited and would not return until the intruder was away. When I would leave and conceal myself some distance away the birds would return within less than two minutes, fly to the hole, peer in, and finding all safe, would again fly away. But when the observer after leaving the burrow remained in the open about thirty yards from the nest tree, at least ten or fifteen minutes would pass before the birds would come within sight; then they would immediately turn and fly back without approaching the nest. They had evidently hidden themselves in the wood and watched the actions about the nest and came back only when they felt that danger was past. Later observations showed that this was an unusually shy pair.

In 1902 seven pairs were found. Four of these seven laid sets of four eggs each, two pairs gave sets of three each, and one pair had a set of only two eggs. These are the smallest sets that I have known from a woodpecker. Five is about the usual number of eggs for the family in Mississippi. In the seven cases the nests were all in similar localities, the burrows little different in size and other particulars, and the nesting habits of the birds much as those cited above.

Five pairs were located during December, 1902, and January, 1903. Four of these pairs were birds that had been watched in their respective woods the previous season. They all nested in the same brakes during the spring of 1903. On March 18 another pair was located in the act of preparing the burrow. These six nests had four sets of four eggs each, one set of only three eggs, and one containing five eggs, the only set of five found in seventeen nests. Four of these sets were hatched. The two pairs from which the eggs were taken did not lay a second set nor build another nest, though as usual they remained in the same wood throughout the season.

I was always unable to observe this locality from about the middle of June until the first of October, but feel sure that these birds did not construct new nests during the summer. Further, on careful searches, no additional pileated burrows were to be seen in the fall, though the birds were still present. As mentioned above it was noted that the same pair would nest in its wood of the former year. In four instances, all of which had lost their eggs the year before, the birds built their new burrows in their several woods within a distance of about one quarter of a mile from the previous nest site. These four are the only cases which were watched with special care. As the birds confine themselves so closely to a given district, and as each piece of woodland is more or less distant from another, the birds are rather easy to keep located. The Flicker, Red-headed, and Red-bellied Woodpeckers of this vicinity also have the habit of nesting repeatedly near the same site after it is once chosen.

Centurus carolinus. RED-BELLIED WOODPECKER. — I have found this woodpecker to be a most interesting bird to observe on account of its remarkable ability for persistent laying. In the spring of 1900 a nest of this species was located in a dead cottonwood tree which stood in an open pasture. The nest was a burrow fifteen inches deep with a perfectly circular entrance about forty feet above the ground. A set of five eggs was taken from it on April 24. The entrance being small it was found necessary to cut it larger so as to admit my hand. Twenty-three days later the same nest contained a second set of five eggs, slightly incubated. The enlarging of the entrance evidently had had no ill effect except for the fact that the burrow had been deepened several inches, probably to prevent an extra amount of light on the floor of the nest. These birds seem to gauge the depth of their excavations more by the amount of light admitted than from any instinct to dig a certain distance. For example, burrows that had their entrance just below a limb or were situated in shady woods were noticed, as a rule, to be shallower than those located in exposed fields or on the sunny side of the tree. The second set mentioned above was taken May 17 and on returning nine days later, May 26, a third set of five eggs was in the same nest. The fact that this set followed the second so much closer

than the second did the first may be explained by the fact that no additional deepening of the burrow had taken place this time, and the second set had become slightly incubated before it was observed. The third set was removed, and on my return June 2, only seven days later, the nest contained a fourth set, consisting of only four eggs. This set was allowed to hatch and the four young woodpeckers were seen in the nest on June 24, when they appeared to be several days old. The nest had then contained four sets with a total of nineteen eggs within the one season of 1900. It appears certain from the following considerations that all nineteen eggs were laid by the same female. The nest tree was rather isolated and there was only one pair of Red-bellied Woodpeckers to be seen in the immediate vicinity during that spring. Also I had seen many of these birds nesting for several years and had not seen one using a second-hand burrow, and feel sure that if they should select one a nest with its entrance so mutilated would not be chosen. The most conclusive evidence is that the eggs of the third set had very much thinner shells than those of the other two sets, or than normal eggs of this species. The size and shape of the eggs were about the same in all of these sets, though it might have been expected that the later eggs would have been smaller.

On several occasions two sets have been seen from the same pair during one season, but I have only in the one case followed it out to the extent recorded above. In Mississippi the second set was always placed in the same burrow that had contained the first, though these birds are recorded from different localities by other observers as digging a new burrow for the second set after the first eggs had been removed.

Colaptes auratus. FLICKER. — It is a well known fact that Flickers will continue laying for some time if the eggs are repeatedly removed from the nest. Thirty-four is the largest number that I have been able to secure from one bird. This seems insignificant when compared to the string of eggs obtained from a Flicker by Phillips in 1883 (*Auk*, IV, p. 346). He succeeded in making his bird lay seventy-one eggs in seventy-three days by starting with two and continually removing one, leaving the other as a 'nest egg.'

In 1900 a Flicker's actions under very peculiar conditions were observed. On April 18 a burrow of a Flicker containing only one fresh egg was found. The egg was not disturbed. When visiting the nest again on April 28 a flying squirrel was found in possession. On my arrival the bird was at the entrance of the burrow peering in at the intruder. It was supposed that the squirrel was eating the eggs, but on examining the nest it was found to contain one spoilt egg. The squirrel had then probably been in possession for the ten days since the nest was observed, so the bird had been unable to enter and lay; thus only the one egg was present, and not having been properly cared for had spoilt. The Flicker must then have remained about her nest for this length of time, and as soon as the squirrel was removed she again took charge. On visiting the nest May 5, seven days later, it contained seven fresh eggs and the old one that had been left. Thus she had laid an egg each day since getting back to her burrow. The eggs were removed to see if she would continue laying, but she did not. This was undoubtedly a case of discontinuous laying unless she had dropped her eggs on the ground while the squirrel was occupying the nest. It seems strange that she did not produce the second set, for although she may have laid every day only seventeen eggs could have been dropped, which is far short of the Flicker's ability in many cases. This is the third instance, while watching twenty-eight pairs of these birds, of a failure to lay a second set in the same nest after the first had been removed. The Flicker was found, in this section, to dig a new burrow each season, and was not seen to use an old burrow or a natural cavity for nesting. Several pairs were, however, observed nesting in the roof crevices of attics.

Dryobates pubescens. DOWNY WOODPECKER. — Several nests of this species were observed, the birds being rather common in the State. No observations were made on their second laying, but the nesting sites were found to be very similar. One or two burrows were seen in almost horizontal branches with their entrance on the lower side, so that the cavities were practically parallel to the ground. The earliest complete set was found April 20, 1900; fresh eggs were not found after May 18.

Melanerpes erythrocephalus. RED-HEADED WOODPECKER.

—Many cases were noted of the second set in the same burrow from this woodpecker when the first eggs of the season had been removed. Careful observations were not made to find whether the laying would continue after the second set had been taken. The Red-head was found to begin laying later in the season than any other member of the family. May 12, 1901, was the earliest full set seen, and fresh eggs have been found as late as June 14. This species was also found to excavate a new nest each season, and was not seen to take an old burrow, though many were often to be had in the same tree.

Catharista urubu. BLACK VULTURE.—The Black Vulture was found depositing her egg in more widely different situations than any other bird observed. The favorite site was a large hollow log, or a tree having a huge hollow base with an opening only a few feet up, so that the female might be able to jump out of the nest. Below are the conditions in which this species was found depositing its eggs:

One pair for three seasons nested in a large hollow sycamore log that lay across a small stream and served as a 'foot log' for a little-used path in a swampy wood. At least three people a day must have walked over the log as the Vulture sat calmly on her eggs. After the three years the log was not observed further. This situation was rather noisy for a bird so retiring in its nesting habits. March 16, 1901, a set of two eggs was found lying on the bare ground under a large tree that had been uprooted and had fallen so that its trunk made an angle of about fifteen degrees to the earth. The eggs were placed below this trunk, which was four and one half feet above them, and thus the slanting sun rays could have fallen upon the spot but for the heavy foliage of the wood. March 19, 1902, two sets of two eggs each were found on the naked ground in a dense cane thicket which formed the underbrush on a thickly wooded slope. Many vultures were evidently laying here as large numbers of them were in the trees overhead. But the thicket was so dense that it was next to impossible to get about to find the eggs.

March 23, 1902, a vulture's nest was seen in a very queer location. This was in a cave in the side of a steep clay bank which bordered a creek. The entrance to the cave was about seven feet

wide, it ran back six feet, and the top was two and one half feet above the floor. The two eggs lay in the back of this cave. It was claimed that the place had been occupied by this pair and their young reared in it for many seasons.

March 29, 1902, a Black Vulture's nest was found situated about sixty feet up in a huge poplar tree which stood in a cotton field that had been cleared for five years. In the crotch of this tree there was a large hollow running down about three feet and slightly sheltered above by the inclination of one of the limbs that formed the crotch. The eggs were deposited on the floor of this hollow. This was the only nest of this species that was observed more than a few feet from the ground. It is probable that the birds occupied this tree while it stood in the woods and when the land was cleared in 1897 the tree, being a large one, was deadened and left standing and the birds continued to use it as a nesting site.

I had now seen it well demonstrated that Vultures did use the same nest season after season even though the eggs were taken the previous year. But in the years 1901, 1902 and 1903 very interesting data were obtained relating to this phenomenon. March 16, 1901, I was directed to a hollow gum tree in which a Black Vulture was said to have reared its young for several years. The bird flew from the nest and exposed two eggs, which were taken and found to be in an advanced state of incubation. In December, 1901, and January, 1902, the tree was visited and the hollow was seen to be littered with fresh excrement and possessed a characteristic odor. It was evident that the birds frequented the place, and probably roosted there. March 8, 1902, she laid the first egg of the new set. This must have been two or three weeks later than her first egg of 1901; the much colder winter may have caused the delay. The second egg was laid on the 11th, three days later, and then the set of fresh eggs was taken from the nest. April 19, thirty-nine days after, on visiting the nest the vulture flew off and the hollow was found to contain another set of two eggs, which were taken and proved to be incubated about two weeks. This was the only case actually observed of the Black Vulture's laying a second set in one season. In December and January of the following winter the tree was visited

but appeared deserted; no excrement or other signs of the birds were to be seen. Several trips were made to the nest the following spring, 1903, but it was unoccupied. In March, 1904, the nest was found still vacant. From this action it was concluded that the birds had been rearing a second set each season after the first had been removed, and so were finally successful and continued to use the site the following year; but now when the second attempt was thwarted they deserted the nest entirely.

One may be certain that the same female laid the sets of consecutive years, as the eggs of one nest are always almost exactly alike in size, shape and markings; while the eggs of different nests show most striking varieties and thus make beautiful series for color variation.

Cathartes aura. TURKEY VULTURE.—This species in Mississippi lays much later in the season than the Black Vulture. Fresh eggs were found on April 25, 1902, and March 21, 1898, was the earliest set seen. Its nesting sites have, in only the few cases observed, been found very constant, being confined in three instances to the hollows of fallen logs, and in two others to the hollows in large stumps. Only five of its nests were seen and in four of these the birds nested for consecutive seasons just as the Black Vulture was found to do. In the southern part of the State the Black is much commoner than the Turkey Vulture, but in the east central portion they appear in about equal numbers.